

What is claimed is:

1. An actuator comprising:

a frame;

5 a driving source for generating a driving force;
a feed screw shaft mechanism for transmitting said
driving force of said driving source, said feed screw shaft
mechanism being assembled into a single unit including a
feed screw shaft and a feed screw nut and detachably
installed to said frame;

10 a slider having an opening for receiving said feed
screw shaft and said feed screw nut therein, said slider
being capable of reciprocating in an axial direction of said
frame under an action of said driving force transmitted by
said feed screw shaft mechanism; and

15 a guide mechanism for guiding said slider when said
slider is displaced along said frame.

20 2. The actuator according to claim 1, wherein said

driving source is a rotary driving source, said feed screw
shaft is rotatable in a predetermined direction under a
driving action of said rotary driving source, and said feed
screw nut has a penetrating screw hole for receiving said
feed screw shaft,

25 said feed screw shaft mechanism being assembled into a
single unit including said feed screw shaft, said feed screw
nut, a bearing holding member, and a bearing mechanism.

3. The actuator according to claim 1, wherein said
driving source is a rotary driving source, said feed screw
shaft is rotatable in a predetermined direction under a
driving action of said rotary driving source, and said feed
5 screw nut has a penetrating screw hole for receiving said
feed screw shaft.

said feed screw shaft mechanism being assembled into a
single unit including said feed screw shaft, said feed screw
nut, a bearing holding member, a bearing mechanism, and a
housing for supporting said rotary driving source.

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4. The actuator according to claim 1, wherein said
driving source is a rotary driving source, said feed screw
shaft is rotatable in a predetermined direction under a
driving action of said rotary driving source, and said feed
screw nut has a penetrating screw hole for receiving said
feed screw shaft,

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said feed screw shaft mechanism being assembled into a
single unit including said feed screw shaft, said feed screw
nut, a bearing holding member, a bearing mechanism, a
housing for supporting said rotary driving source, and an
end plate.

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5. The actuator according to claim 1, wherein said
feed screw nut is a ball screw nut having a cylindrical
section having a penetrating screw hole, and a pair of
flange sections which are formed integrally at one end of

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said cylindrical section and which are fixed to a side
surface portion of said slider.

5 6. The actuator according to claim 1, wherein said
guide mechanism includes plates and covers which are
connected to said slider and return guides which are
installed to side surfaces of said slider, and said plate,
said cover, and said return guide, which are disposed on one
side in an axial direction of said slider, are composed of
the same constitutive components as those of said plate,
said cover, and said return guide which are disposed on
other side in said axial direction of said slider.

15 7. The actuator according to claim 1, wherein said
opening extends in said axial direction, and defines a U-
shaped inner surface of said slider.

20 8. The actuator according to claim 7, wherein said
slider has a hole which penetrates from said opening to said
frame.

9. The actuator according to claim 8, wherein said
hole has a rectangular cross section.

25 10. The actuator according to claim 1, wherein a
sensor is attached to one side surface on an outer side of
said frame with an attachment member, and said sensor

detects an object which is displaceable in unison with said slider.